Secondary Vocational Education in the State of Washington



February 10, 1995

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The Legislative Evaluation and Accountability Program Committee is pleased to present this report on Secondary Vocational Education in the State of Washington. synthesizes results from a study commissioned by the legislature in the 1994 Supplemental Budget, ESSB 6244, Ch. 24, Sec. 104.

Both the study effort and report preparation were led by Lori Bame, Michael Mann and Julie Burke of the LEAP Committee staff. LEAP was greatly assisted by a resource group formed at the outset of the study. This group, led by Bruce Hawkins of the Kennewick School District, included staff from local school districts, the Office of the Superintendent of Public Instruction, the Washington Vocational Association, the Washington Association of Vocational Administrators, and legislative fiscal committee staff. They collaborated in carrying out the study, bringing about practical knowledge of program offerings and service delivery.

An important element of this study is the comparison of resources provided through the state funding formula with resources employed by local districts to deliver vocational education. That comparison reveals a widening gap between revenues generated by the formula and expenditures charged directly to the programs by local districts. The main thrust of followup recommendations is to obtain information needed to understand and correct this problem.

This report contains a great deal of valuable information about secondary vocational education in Washington State. It has the potential for lasting value if follow-up activities recommended in the report are successfully accomplished. We look forward to discussing this report with you.

Sincerely,

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Table of Contents

EXECUTIVE SUMMARY	1
ACKNOWLEDGMENTS	5
BACKGROUND INFORMATION	7
Study Method	7
Delivery of Vocational Education	8
FINDINGS	11
Drivers of Change in Vocational Education	11
Enrollment Trends	14
Staffing Trends	15
Revenues and Expenditures	18
Benefits	22
RECOMMENDATIONS	25
APPENDICES	27
A. Legislative Proviso	29
B. Study Design	31
C. Funding Formula History	33
D. Expenditure Comparison	35
E. School-to-Work Transition System	37
F. Glossary	39

Reasons for the Study

In light of newly enacted expenditure limits, all fast growing K-12 programs are being reviewed in an effort to manage spending within the overall limits.

Engrossed Substitute Senate Bill 6244, chapter 24, section 104, passed during the 1994 first special session, directed that the Legislative Evaluation and Accountability Program (LEAP) Committee conduct a study of secondary vocational education in Washington State. This study was intended to address several issues, including:

- Vocational enrollment is growing at a much faster rate than overall secondary enrollment.
- Advances in technology and new instructional methods are changing the way vocational education is taught; in addition to traditional/sequential courses, vocational education now employs applied academics, and integrated vocational and academic methods of instruction.
- Vocational education is funded at a higher level than other components of basic education.
- Current funding formulas were adopted in 1977; the correlation between funding formulas and actual expenditure patterns incurred in delivering vocational instruction was not then known.

Findings

Through a combination of site visits, data analysis, questionnaires, resource group meetings, and presentations and discussions, the study finds...

Enrollments

Districts reported 40,720 FTE vocational students in the 1992-93 school year (17 percent of total secondary enrollments). **Vocational enrollment grew at an average rate of 6.4 percent** over the study period of school years 1988-89 through 1992-93, and is projected to increase 7.8 percent per year in the 1995-97 biennium. **Overall secondary enrollment averaged 1.9 percent growth** over the study period and is projected to average 4.3 percent in the 1995-97 biennium.

Enrollment data was not available in a format to fully support the analysis of the different instructional methods. However, in an effort to determine which methods of instruction account for the most enrollment growth, questionnaires were sent to 16 high-growth, high-enrollment districts. Results from the questionnaires indicate that **growth is distributed throughout**.

Findings (continued)

Vocational courses change to reflect changes in the workplace. Rapid advancements in technology affect course curricula and costs. The emphasis on applied learning is extending into academic courses through education reform initiatives. Integrated courses and new applied academic courses are blurring the distinction between vocational and academic education.

State funding for vocational education exceeds funding for other basic education on a per pupil basis.

Funding Formula

In school year 1992-93, state funding averaged \$4,348 per FTE vocational student compared to \$3,400 per FTE academic student -- a difference of 28 percent. The enriched funding was intended to provide for:

- Smaller classes because of safety concerns associated with power tools and dangerous materials;
- More individualized instruction, which is required by hands-on learning;
- Expensive equipment, supplies, and materials; and
- More staff time required for the student leadership component, instructor skill training, coordination with community, business, and industry, and supervision of student work programs.

Staffing Ratios

Much of the 28 percent funding differential for vocational education results from smaller class sizes assumed in the state funding model. Actual class sizes reported and observed during the study were larger than expected; this was the case for traditional/sequential courses as well as integrated and applied academics courses. **Staff increases are not keeping pace with enrollment increases.**

It is important to note that the funding formula is a revenue distribution model, not an expenditure pattern requirement.

Revenues and Expenditures

Correlation between funding formulas and actual expenditures was measured by comparing formula revenues per student with direct

Findings (continued)

A Skills Center serves a consortium of school districts, with a primary focus of providing high-cost, capitalintensive courses.

Exposure to work skills and career-oriented education benefits students whether they are going directly into the workforce, pursuing further technical training, or going on to higher education.

expenditures per student in the secondary vocational program. Direct expenditures represented 87 percent of formula revenues in the 1988-89 school year and 80 percent in the 1992-93 school year. **Direct expenditures per student are not keeping pace with increases in formula revenues.**

The financial situation is different for Skills Centers. They operate as a separate self-contained program. The Skills Centers pay support costs directly out of their program budgets, which are funded by state formula revenues and other sources. Program expenditures represented 109 percent of formula revenues in the 1988-89 school year and 100 percent in the 1992-93 school year. Because they draw from a consortium of districts, Skills Centers do not run bond issues or maintenance and operation levies to fund building maintenance and improvements.

Benefits

Information is not available to quantify benefits attained from vocational education programs. However, a number of benefits became apparent during the study. Advisory Committee involvement promotes relevance in vocational programs and also strengthens operating linkages between schools and the community. For many students, academic concepts are more readily understood through practical applications emphasized in vocational classes. Students gain valuable skills by learning to work with advanced technology.

The study highlighted a need for further information to support local district decision making and to satisfy reporting requirements. Information on vocational education funding model factors, revenue generated, and budget expenditure levels needs to be more accessible to all stakeholders. **More extensive follow-up information on student outcomes is needed to validate perceived program benefits**. The role of the Office of the Superintendent of Public Instruction needs to be strengthened to ensure the integrity and timely availability of the data.

Recommendations

To address these issues and for follow-up activities to succeed, both SPI and the study resource group must actively participate.

This study identifies several issues for follow-up:

- Enrollment, staffing, and expenditures for vocational courses need to be categorized and reported separately by method of instruction.
- Vocational education benefits cannot currently be quantified.
 A mechanism needs to be put in place to provide longitudinal follow-up information on student outcomes.
- Vocational program and fiscal information needs to be more readily accessible to all stakeholders.
- The Skills Center Program needs a mechanism to fund building maintenance and improvements.

The trends identified in staffing ratio comparisons and in revenue and expenditure comparisons indicate an increasing divergence between funding formula assumptions and actual experience in local districts.

Based on continuing trends, the state funding formula no longer provides a good long-term fit with program delivery in vocational education.

Most of the recommendations specify obtaining more data on vocational education. The follow-up activities will produce data needed to make informed decisions on how to improve the fit between the funding formula and program delivery of vocational education.

Acknowledgments

The Legislative Evaluation and Accountability Program (LEAP) Committee study staff would like to acknowledge the contributions of the K-12 Vocational Education Study Resource Group, the Office of the Superintendent of Public Instruction (SPI), the Washington Vocational Association (WVA), the Washington Association of Vocational Administrators (WAVA), legislative fiscal staff, and the many local district staff who hosted site visits.

The study staff has been fortunate to have available the talent, time, and dedication of the members of the resource group. The commitment of this group to collaborate on the study led to a much better understanding of program offerings and delivery. The resource group also provided invaluable assistance, data validation, and insights throughout the study. In visiting local districts, the study staff found universal enthusiasm for vocational programs and a willingness to participate in the study. During presentations made to vocational education groups and legislative committees, audiences demonstrated genuine interest in the ongoing role of vocational education.

The Office of the Superintendent of Public Instruction collects data on enrollments, staffing and compensation, and revenues and expenditures from local school districts. It also routinely publishes reports on this data and supplies it in electronic format to LEAP. The study staff would like to acknowledge that SPI was the original source of all data used in the analyses in this report. This data includes the following reporting formats: F218 and P223 enrollments, S275 and S277 staffing and compensation, F196 revenues and expenditures, and 1191F reports.

Engrossed Substitute Senate Bill 6244, chapter 24, section 104, passed during the 1994 first special session, directed that ...the Legislative Evaluation and Accountability Program Committee in conjunction with the K-12 Legislative Fiscal Study Committee... shall prepare a study of vocational education programs for grades 9 through 12 funded through the K-12 apportionment formula of the budget.

The proviso specified analysis of:

- Historical reasons for staffing ratios contained in the state apportionment formula;
- Changes in vocational instruction in the information and technology age;
- · Vocational education delivery methods; and
- State funding and school district expenditures.

Reasons for the study include: a climate of increasing state fiscal constraint; a perception that vocational enrollments were growing faster than overall secondary enrollments; and a concern about local district funding and expenditure patterns compared to funding factors used in the state model for distributing enriched vocational funds to the districts. This concern arose from a realization that instructional methods are changing to meet dynamic requirements of students and the workplace. These changes may alter funding requirements and yet the state funding model is essentially unchanged since 1977. Appendix A contains the full text of the proviso.

Study Method

LEAP Committee staff conducted this study in collaboration with a resource group consisting of staff from local districts, SPI, WVA, WAVA, and legislative fiscal committees. Major work consisted of a study design (see Appendix B), site visits, surveys and questionnaires, data analysis and validation, and development of this report.

The visited sites included districts representative of the different demographics within the state to ensure that collected data indeed reflected statewide trends. Because the Vocational Education Program (Program 31) accounts for more than 90 percent of the enrollments, expenditures, and revenues in K-12 vocational education, that program receives the main focus in this report. Skills Centers (Program 45) comprise the balance of K-12 vocational education.

In an effort to achieve consistency and maintain comparability, the study focuses on data for the school years 1988-89 through 1992-93. It examines individual district detail as well as statewide totals. For many years, LEAP has maintained historical databases which contain staffing, compensation, enrollment, revenue, and expenditure information at the

Study Method (continued)

district level. While these databases contain substantial information for all K-12 programs, they do not contain details for individual vocational programs. To address the need to look at individual programs, additional enrollment and expenditure data was obtained from SPI. For further detail on study methods, please refer to the Working Papers document.

Delivery of Vocational Education

According to the 1994-96 Vocational-Technical Districtwide Plan instructions, the goal of vocational education in the State of Washington is to provide high-quality programs which contribute to the economic development of the state by assuring equal access to vocational education for all students; promoting and marketing vocational education; providing students with career development and work experiences; assuring quality staff development programs; ensuring effective local program advisory committees; and involving community and business in vocational education planning.

The Vocational Education Program was established in 1919 pursuant to the Federal Smith-Hughes Act of 1917. Vocational coursework is delivered through two kinds of programs:

- Vocational Education, Program 31, in which students take courses at local district comprehensive high schools; and
- Skills Centers, Program 45, in which students enroll in programs offered by eight interdistrict cooperatives.

Comprehensive high schools generally offer vocational courses that are one period long, while Skills Centers offer classes that are three periods long. Courses delivered through both of these programs incorporate three key elements: a vocationally certified instructor, an active advisory committee comprised of business and industry professionals, and a student leadership component.

Vocational programs rely upon strong partnerships with business and industry, higher education and technical institutions, and state, federal and local agencies. These partnerships provide program direction and involve students in career-oriented education.

Delivery of Vocational Education (continued)

Each of the eight regional Skills Centers functions as a multi-district cooperative and acts as an extension of local high schools at off-site locations. In general, Skills Centers offer higher-cost programs, enroll more high-risk students, utilize more contractual services for instruction, and provide more competency-based and hands-on learning than comprehensive high school programs.

Washington State has traditionally funded vocational programs at a higher level than academic programs. Prior to 1977, vocational education enriched funding was distributed according to a weighted pupil formula, by which a weighting factor for each vocational enrollment was added to the basic per-pupil amount. Following the implementation of the State Basic Education Act of 1977, a funding formula was adopted based on improved staffing ratios and an enriched non-employee related cost (NERC) component. This enriched funding is intended to address requirements particular to vocational education programs. These requirements include:

- More costly equipment, materials, and supplies;
- Safety regulations and supervision of student workplaces;
- More individualized student-teacher contact; and
- Additional staff hours to coordinate student work experiences, oversee student leadership activities, coordinate with business and community advisory committees, and keep skills up-to-date.

According to the funding formula adopted in 1977, districts receive enriched state apportionment dollars as determined by their FTE enrollments in vocational education programs.

Instructional Methods

Vocational education employs three different instructional methods. They are traditional/sequential, integrated vocational and academic, and applied academics programs.

A **traditional/sequential program** is a series or suite of related courses that provides a cumulative learning experience, building to a skill level that prepares the student for entry-level employment. This method generally entails high-cost programs and requires smaller class sizes. One example is an agriculture program consisting of Agriculture Science I, II,

Delivery of Vocational Education (continued)

Vocational courses have become a vehicle for teaching academic concepts through practical applications.

III, IV. Another example is a Business and Office program consisting of Keyboarding, Information Processing I and II, Accounting I and II, and a Business and Office Cooperative capstone course. This sequence provides a student with a certificate of mastery (or competency) and prepares them for entry-level employment.

An **integrated program** combines vocational and academic concepts into a single curriculum to increase relevance of course work, strengthen and increase academic standards, and enable students to apply academic principles. Staff teaching such courses must have expertise in both types of curricula, and interdisciplinary methods are frequently used to cover multiple subjects. Such a program also requires substantial instructional coordination for effective curriculum development. Many of these classes can effectively accommodate larger class sizes. Examples include Biology and Agriculture Science, English and Business Communications, Foods and Fitness, Keyboarding and English.

Applied academics are specific courses that involve "real-world" exercises used to demonstrate established academic principles. Such courses offer students the opportunity to relate theory with practice through hands-on learning. These courses require specific instructional training in the curriculum area. They tend to have high start-up costs and often can accommodate larger class sizes. The vocationally approved applied academics courses are Principles of Technology, Applied Math, and Materials Science Technology.

This section details the findings of the study and describes the major forces that drive changes in vocational education programs. Observations are then provided on enrollment and staffing trends, patterns of revenues and expenditures, and benefits of the programs.

Drivers of Change in Vocational Education

Vocational education is experiencing changes driven by advances in technology and changes in workplace demands, instructional methods, and perceptions of vocational education. Education reform initiatives are also impacting vocational education.

More than anything else, changes in technology drive changes in vocational education programs.

Technology

Utilization of technology is one of the distinguishing characteristics of vocational education. Whereas technology once figured prominently in only a select number of vocational courses, today it impacts virtually every program offering. For example, for many years an automotive maintenance course dealt only with the same basic skill set, such as tuning the car and changing the oil. Today, the course addresses not only this set of skills but also the changing set of technical skills required to operate computerized diagnostic equipment, analyze and communicate the results, and, ultimately, fix the problem.

The impact of technology extends beyond the use of computer chips. Vocational programs provide students with the opportunity to learn about such sophisticated technologies as gene splicing and biotechnology as part of an agriculture curriculum. Students may learn about the use of laser technology as part of a dental program. Vocational education can provide students opportunities to access technologies relevant to their career interests.

Another distinguishing characteristic is interdisciplinary curricula. Vocational education provides opportunities to take skills learned through exposure to advanced technology and apply these skills in other courses and in careers.

Since vocational education utilizes technology more heavily than non-vocational programs, the rapid advances of technology have more effect on vocational curricula and program costs. It can be cost-prohibitive to keep pace with the technology, however, programs lose relevance if they lag too far behind current technology.

Drivers of Change(continued)

Advisory committees provide program direction.

In response to
Education
Reform
initiatives, many
districts in
Washington
State have
increased
emphasis on the
relevance of
school to life and
to work.

Workplace

The demands of the workplace are another dominant factor in the changes within vocational education. Employers want and expect more high-tech, highly skilled entrants into the workforce. These highly skilled workers are also expected to bring to the job strong cognitive, problem-solving, decision-making, and leadership skills. Vocational education responds to such workplace demands by updating and upgrading existing programs, adding programs in new subject areas, and removing programs in subject areas characterized by low interest and poor job opportunities.

Education Reform

To meet the goals and objectives of comprehensive federal and state initiatives such as Education Reform, School-To-Work Transition, and Tech-Prep, greater attention is being given to vocational skills in an increasing number of schools. The goal of School-To-Work in Washington State is "to provide ALL students with options that will help them learn and gain the skills needed to live, learn and work in our changing world."

Districts have also implemented more competency-based curricula and have modified their academic curricula to incorporate "career pathways," thereby increasing the integration of vocational and academic curricula. Many of these program changes have been funded at least in part through access to special grant monies. Career pathways follow the "schools within a school" concept, allowing students to choose from pathways such as Business and Marketing, Health and Human Services, and Engineering and Scientific.

The increasing focus on School-To-Work Transition creates a greater need for career counselors and career centers, which are primarily funded by vocational education yet serve all students. See Appendix E for a diagram of the components of School-To-Work Transition.

Instructional Methods

The range of course offerings in traditional/sequential, integrated vocational and academic, and applied academics programs is changing. Where the comprehensive schools offer all three methods of instruction, the Skills Centers offer primarily traditional/sequential programs through competency-based curricula. Driven by the student's motivation to master

Drivers of Change

(continued)

Some vocational educators claim that all vocational courses are integrated in that they blend academic and vocational concepts through applied learning.

Exposure to work skills and career-oriented education benefits all students.

vocational skills, academic principles are reinforced as they apply to the vocational curriculum in which the student is involved

An increase in applied and integrated curricula in both vocational and non-vocational programs raises several questions. For example, will the distinction between vocational and academic courses continue to blur? How much of the vocational enrollment increase results from the proliferation of integrated programs?

Integrated and applied academics programs are both relatively new to vocational education instruction. The vocational education funding formula differentiates neither of these methods. One of the objectives of this study is to identify differences in funding requirements among the three instructional methods.

Perceptions

As workforce needs have evolved and vocational programs have responded to meet the needs of students entering the workforce, the perception of vocational education has also evolved.

In the past, vocational education programs struggled with an image problem. While the non-vocational high school curriculum was geared towards students going on to higher education, vocational education programs were focused on a student population that would either directly enter the workforce or pursue further skills training. The perception existed that vocational education was less important than standard academic curricula.

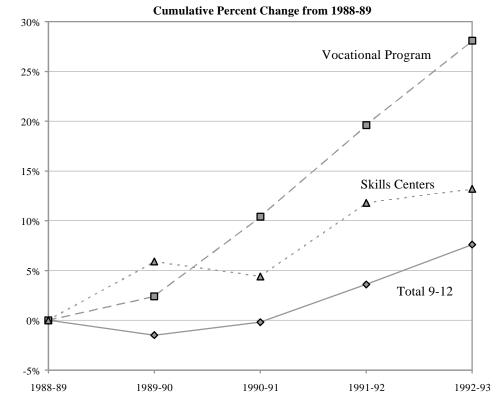
That perception is changing -- students, instructors, administrators, and business communities are beginning to regard vocational courses as high-tech programs involving high-skill subject areas. As fewer students pursue higher education directly out of high school, vocational educators have responded to meet student needs whether the student is directly entering the workforce, pursuing additional skills training, or continuing education at a community college or four-year institution.

Enrollment Trends

In looking at enrollment growth in the vocational programs, the dominant factors are responsiveness to the needs of business and industry and responsiveness to the needs of the student.

Figure 1 shows that from 1988-89 to 1992-93, enrollments in the Vocational Education Program increased over 28 percent, and enrollments in Skills Centers increased more than 13 percent (Skills Centers enrollments include Summer School). During the same period, total secondary enrollments increased less than 8 percent.

Vocational Education Program FTE Enrollment



	1988-89	1989-90	1990-91	1991-92	1992-93
Vocational Program FTEs	31,798	32,554	35,103	38,037	40,720
Cumulative % Change		2.4%	10.4%	19.6%	28.1%
Skills Centers FTEs	2,668	2,824	2,786	2,983	3,021
Cumulative % Change	ŕ	5.9%	4.4%	11.8%	13.2%
Total 9-12 FTEs	221,054	217,699	220,506	229,115	237,796
Cumulative % Change	•	-1.5%	-0.2%	3.6%	7.6%

Figure 1

Enrollment Trends (continued)

The vast majority of school districts statewide experienced vocational enrollment growth that exceeded their overall secondary growth. Thus, the enrollment increases in the Vocational Education Program and the Skills Center Program confirm the premise of the proviso that vocational enrollments are growing at a faster rate than the overall grades 9 through 12 enrollment.

Some programs experiencing the fastest growth are Family Health, Dental Assisting, Nursing Assisting, Computer-Aided Drafting / Computer-Aided Manufacturing (CAD/CAM), Computer Programming, and Automotive Mechanics. Accelerated changes in technology can dramatically affect many of these same programs.

Vocational programs rely on strong partnerships with business and industry to accommodate enrollment growth. These partnerships involve bringing professionals into the classroom and conducting classes at business and industry sites. Further information on vocational program area growth can be found in the Working Papers document.

One of the assumptions that prompted this study was that most of the enrollment growth is occurring in the integrated academic and vocational programs. Because enrollment data is not categorized by method of instruction, no conclusive finding could be made regarding differential growth rates statewide. However, results from questionnaires distributed to 16 high-enrollment, high-growth districts indicated that all three methods of instruction (traditional/sequential, integrated vocational and academic, and applied academics) are experiencing enrollment growth. Questionnaire results are further detailed in the Working Papers document.

Staffing Trends

The biggest driver in distributing *more* funds for vocational education is an enhanced staffing ratio. For non-vocational secondary basic education, the certificated staffing ratio remained at 1:20 from 1988-89 to 1992-93. (This means that for every 20 FTE enrollments, a district received funding for one certificated staff unit.) In contrast, the certificated staff ratio for the Vocational Education Program was improved from 1:17.5 to 1:16.67 during this period. This change resulted in a restoration to the 1:16.67 level from the 1981-82 school year. Since 1983-84, the Skills Center Program funding formula staff ratio was maintained at 1:16.67. This sustained their enriched funding in recognition of Skills Centers' specific operating requirements

Staffing Trends (continued)

and higher-cost programs.

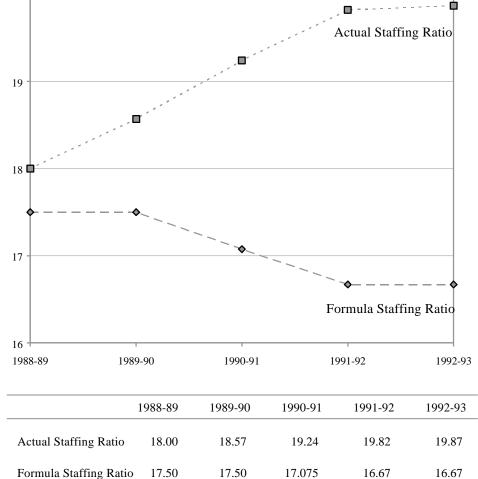
The classified staff ratio, however, remained at 60:1 throughout the study period for both vocational education and other secondary basic education. This ratio does not impact differential funding for vocational education.

While the vocational certificated staff ratio in the formula has improved, the actual staff ratio reflected by the staff directly charged to Program 31 has not. In fact, the actual staff ratio has deteriorated approximately two FTE enrollments per vocational certificated staff as seen in Figure 2 below.

> **Vocational Education Program FTE Enrollment**

Per Certificated Staff 20

Vocational education enrollments and revenues are growing faster than districts are adding staff.



	1988-89	1989-90	1990-91	1991-92	1992-93
Actual Staffing Ratio	18.00	18.57	19.24	19.82	19.87
Formula Staffing Ratio	17.50	17.50	17.075	16.67	16.67

Figure 2

Staffing Trends (continued)

Similarly, the *actual* staff ratio reflected by the staff directly charged to Program 45 has deteriorated approximately 1.5 FTE enrollments per certificated staff member (*Figure 3* below). Although staffing ratios are not the same as class size, a correlation does exist, indicating that vocational class sizes have grown over the period covered by this study.

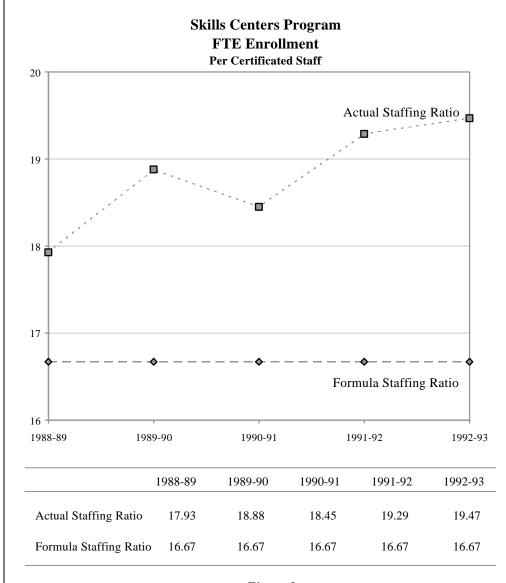


Figure 3

What are the factors that contribute to the disparity between funding formula staff ratios and actual staff ratios? First, a lag is acknowledged between enrollment growth and staff hiring -- some districts are unable or unwilling to devote resources to new staff until enrollment increases are

Staffing Trends (continued)

confirmed as stable. Second, many districts increase class sizes because qualified vocational instructors are unavailable or unobtainable -- requirements for vocational certification and an inability to match private sector salaries contribute to the scarcity of instructors in vocational education. Finally, extraordinary space requirements for equipment, supplies, and materials are common in vocational education programs. It is often easier, and always less costly, to increase the size of a class than to find the space (and the instructor) to offer another course.

The use of contractual services in lieu of hiring staff for providing classroom instruction has also been examined. While the use of contractual services increased somewhat over the study period, it is not a major factor affecting the trend. It should be noted, however, that the impact of the use of contractual services was accounted for in measuring actual staffing ratios.

Class size requirements may vary by method of instruction. A perception expressed at the outset of the study held that neither applied academics nor integrated courses require the small class sizes associated with traditional/sequential courses. Because enrollment and staffing data are not categorized by method of instruction, it was not possible to draw a conclusion about that perception

Revenues and Expenditures

NERC funding provides for supplies and materials, instructional materials, contractual services, travel, and capital outlays. The biggest driver in distributing K-12 funds is, again, staff ratio. The funding formula specifies a ratio representing the FTE enrollments per certificated staff and an associated amount of state apportionment money (certificated staff units); another ratio for classified staff (classified staff units); and an amount for non-employee related costs (one NERC unit for each certificated staff unit that the formula generates).

For 1992-93 the formula allocated an average of \$49,378 per certificated staff unit and \$31,354 per classified staff unit. These averages pertain to vocational education and other basic education as well. The amount per NERC unit is almost double for vocational education as compared to other basic education. For 1992-93, the NERC unit was \$13,454 for vocational education and \$7,060 for basic education.

SPI distributes apportionment funds, frequently referred to as formula revenues, to the local districts on the basis of these ratios. It is important to

Revenues and Expenditures (continued)

note that the funding formula is a revenue distribution mechanism. The amount that the formula distributes to a school district is based on the FTE enrollments in that district. The formula does not specify how the district spend those monies or how many students must be served in the classroom. For further information on the funding formula history, please refer to Appendix C.

The study design called for information concerning funding patterns in other states. The study staff's analysis indicated a wide variety of practices, with no one, consistent approach recurring across the country. The Working Papers document contains further information on funding patterns in other states.

Between school years 1988-89 and 1992-93, both formula revenues and program direct expenditures for vocational education increased. To take into account enrollment growth, the study examines revenues and expenditures on a per-pupil basis.

For the Vocational Education Program over this entire period, there has been a gap between revenues and expenditures, as *Figure 4* on the following page illustrates. These programs bear a share of indirect costs (building space, custodial services, insurance, utilities, superintendent's office, etc.); therefore, it is not surprising to see a gap between formula revenues and direct program expenditures. In effect, this gap represents the amount vocational programs are contributing toward total district overhead.

As seen in *Figure 4*, the gap has widened. This widening indicates that proportionately less of the formula revenues is being spent directly on the program. Analysis of revenue and expenditures for NERC indicate that they are not contributing to the widening gap. As was the case with staffing ratios, in *Figure 2* on page 16, the phenomenon requiring more explanation is the widening gap over the last few years.

Two factors cited by district personnel to explain the widening gap are the pressures of rising costs in other areas and the non-regulatory environment. Examples of rising costs in other areas include the transportation program and collective bargaining agreements. While both enriched staffing and NERC factors drive increased dollars out to local districts, districts are not obligated to spend those dollars in strict accordance with those factors.

Revenues and Expenditures (continued)

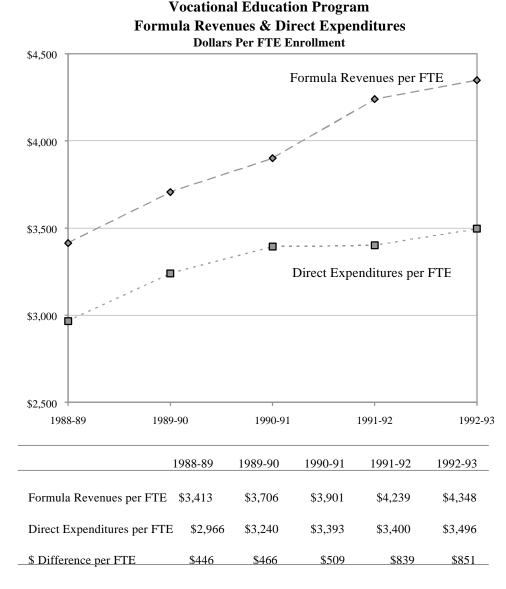


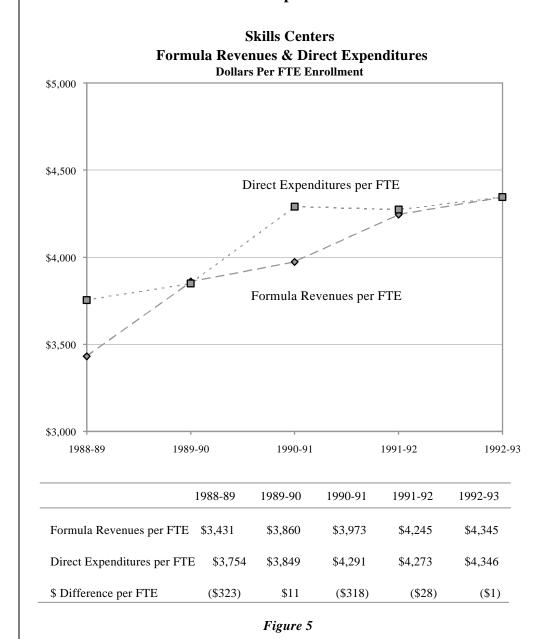
Figure 4

The financial picture is markedly different for the Skills Centers. Over this period, direct expenditures met or exceeded their formula revenues, as *Figure 5* on the following page illustrates. In general, Skills Centers can charge their costs for building space, utilities, insurance, and other support areas directly to Program 45. Therefore, there is little or no gap between total formula revenues and total direct expenditures for Skills Centers.

Because each Skills Center serves multiple districts, it faces a hardship whenever its facilities need refurbishment or enhancements. Unlike

The Skills Center Program needs a mechanism to fund building maintenance and improvements. Revenues and Expenditures (continued)

vocational programs in the comprehensive high schools, Skills Centers cannot address facility needs through locally voted bond issues or maintenance and operation levies. Indeed, the prospect of getting all districts served by a Skills Center to approve bonds and levies to address these facility needs is remote at best. Some type of funding mechanism is needed to maintain and enhance plant facilities at the Skills Centers.



The widening gap between formula revenues and vocational program expenditures in the comprehensive high schools is the most significant

Revenues and Expenditures (continued)

finding of this study. Although there were many factors identified contributing to the gap itself, the study staff was not able to identify a single overriding cause for this *widening* gap. A major contributing factor unquestionably is the lack of connection between funding factors and the costs incurred in running the programs at the local district level.

Much data is reported about the vocational programs, but too little information gets back to those managing the programs. This study marks the first concerted effort to compare actual costs incurred in delivering vocational instruction against the funding assumptions used to distribute vocational dollars to the districts. This attention should spur increased emphasis on data integrity and accessibility. Efforts currently underway at SPI offer the opportunity to address reporting issues. SPI and local districts need to "close the loop" so those responsible for managing programs have ready access to revenue and expenditure information as well as staffing, workload, and performance information.

Benefits

Vocational education promotes applied learning and emphasizes relevance to the student's current and future world of work, home, and family. The teaching methods employed, and the subjects offered, appeal to a growing number of students. Compilation and analysis of responses recorded across the state reflect a consistent set of attitudes toward vocational education that help put the data into context.

In visiting local districts, the study staff found universal *enthusiasm* among students, instructors, and community representatives for vocational programs and a willingness to participate in the study. During presentations made to vocational education groups and legislative committees, audiences demonstrated genuine interest in the ongoing role of vocational education. Skills Centers directors enthusiastically describe their programs as flexible, adaptable, and customer-driven. Such enthusiasm acts as a marketing tool for the programs, drawing students and encouraging community involvement.

Those involved in the programs demonstrate strong *commitment*. Students exhibit this by the ownership they take in the learning process, involvement in leadership programs, and participation in fundraising events. Instructors dedicate time to in-service programs and supervision of student activities.

Benefits

(continued)

Program benefits cannot currently be quantified. A mechanism is needed to provide longitudinal follow-up information on student outcomes.

Vocational administrators coordinate with instructors and community representatives to develop responsive programs.

Cooperation is reflected through increased integration of vocational and academic courses, team teaching efforts, and partnerships with businesses and the community.

The emphasis upon applied learning, the teaching of skills for life and work, and the building of programs responsive to the needs of businesses and communities highlight the importance of *relevance* within vocational education.

The nature of benefits articulated for vocational education is largely subjective. Enthusiasm for the program, relevance to students' lives, and commitment by teachers, students, and the community are all difficult to measure in hard numbers. Other benefits such as enhanced learning through hands-on application of academic concepts, increased familiarity with technology, and acquisition of technical skills are less subjective but still difficult to measure objectively and consistently.

The benefits claimed to result from vocational education could be validated through such measures as a longitudinal study of student outcomes, the use of focus groups, and the periodic sending of questionnaires to stakeholders.

Recommendations

To address these issues and for follow-up activities to succeed, both SPI and the study resource group must actively participate.

Stakeholders in vocational education recognize the significant contribution that these programs make within the state. It is widely acknowledged that these programs respond well to the challenges of keeping up with changes: changes in technology, in the needs of business and industry, and in an increasingly complex world where competing priorities of work and family must be balanced. To ensure that vocational programs can continue to meet these challenges, several follow-up activities should be pursued:

- Enrollment, staffing, and expenditures for vocational courses need to be categorized and reported separately by method of instruction. See pages 15, 18, and 22 in Findings.
- Vocational education benefits cannot currently be quantified. A
 mechanism needs to be put in place to provide longitudinal
 follow-up information on student outcomes. See page 23 in
 Findings.
- Vocational program and fiscal information needs to be more readily accessible to all stakeholders. See page 22 in Findings.
- The Skills Center Program needs a mechanism to fund building maintenance and improvements. See pages 20 and 21 in Findings.

The trends identified in staffing ratio comparisons and in revenue and expenditure comparisons indicate an increasing divergence between funding formula assumptions and actual experience in local districts.

Based on continuing trends, the state funding formula no longer provides a good long-term fit with the ways districts deliver vocational education programs.

Most of the recommendations specify obtaining more data on vocational education. The follow-up activities will produce data needed to make informed decisions on how to improve the fit between the funding formula and program delivery of vocational education.

Vocational
education plays
a positive role in
Washington
State. Carryingout these
recommendation
s will maintain
and strengthen
these programs.

Appendices

A.	Legislative Proviso	29
B.	Study Design	31
C.	Funding Formula History	33
D.	Expenditure Comparison	35
E.	School-to-Work Transition System	37
F.	Glossary	39

Appendix A -- Legislative Proviso

Engrossed Substitute Senate Bill 6244, chapter 24, section 104, passed during the 1994 first special session directed that...

The legislative evaluation and accountability program committee, in conjunction with the K-12 legislative fiscal study committee established under chapter 336, Laws of 1993, shall prepare a study of vocational education programs for grades 9 through 12 funded through the K-12 apportionment formula of the budget. The study shall address: The historical reasons for staffing ratios contained in the state apportionment formula; the changes in vocational instruction in the information and technology age; and the instructional requirements of integrated vocational and academic programs, traditional vocational programs, and skill center programs. The study shall include an analysis of state funding and school district expenditures in a sample of school districts engaged in the different types of vocational education programs. The study shall be submitted to the office of financial management and the fiscal committees of the legislature by December 15, 1994.

Appendix B -- Study Design

Background

The '94 Legislature authorized the LEAP Committee in conjunction with the K-12 Legislative Fiscal Study Committee to explore funding and expenditure patterns for K-12 vocational education programs in grades 9 through 12. Study design is now underway and the study is scheduled to be completed and submitted to OFM and the Legislative fiscal committees by December 15, 1994.

Why the study is needed

- Vocational education FTE enrollment is growing at a faster rate than overall 9 through 12 grade enrollment.
- Current funding formulas for vocational education were adopted in 1977.
- Methods of teaching vocational education are changing to meet dynamic requirements of students and the work place.
- Correlation between funding formulas and actual expenditure patterns incurred in delivering vocational instruction is not known.

Who's involved

The LEAP Committee, in conjunction with the K-12 Legislative Fiscal Study Committee, is charged with preparing the study. We need to draw on the knowledge and experience of those directly involved in delivering and administering vocational education in local districts and at the state level. To accomplish this, we have formed a work group comprised of local district personnel, SPI personnel, OFM staff, and legislative fiscal and research staff. This group developed the study design, and will organize and execute site visits, data compilation, survey design, and report preparation. In conducting this study, our intent is to minimize the burden on local districts throughout the site visits and survey process.

Proposed study scope

The work group will describe the current models for both state and federal vocational education funding and will explain the historical basis for those models. The work group will also:

- Analyze spending patterns and enrollment trends for each of the primary methods of vocational education instruction.
 - Sequential work force training (traditional)
 - Integrated vocational and academic programs
 - Skills Center programs
- Synthesize information from other states in search of "best practices" funding models and program delivery.

Appendix B -- Study Design

Proposed study approach and schedule

- A preliminary work plan based on this study design will be completed by the end of April.
- The work group will visit local vocational education programs in early May to test the validity of the proposed approach.
- The work plan will be refined based on findings from preliminary site visits; further site visits will be scheduled through the month of May.
- The work group will review funding models and program delivery information gathered from other states.
- If preliminary analysis identifies a need for additional information, the work group will design a survey to cover a larger sample group. The survey will be sent to districts in September with a return date of mid-October.
- Follow-up site visits, if needed, will take place in October.
- Report preparation will employ a "just-in-time" methodology. As data analysis and synthesis is completed for a component, that portion of the report will be written. Target date for full draft of the report is November 15, 1994.
- Report drafts will be distributed to Committee members and interested parties through the end of November for reaction and comments.
- Final report will be completed and published by December 15, 1994.

Appendix C -- Funding Formula History

Vocational education was first supported at the federal level with the enactment of the Smith Hughes Act in 1917. In 1919, the Washington State Legislature enacted enabling legislation establishing a vocational program. According to a legislative budget committee report on the subject, "...the state distributed formula has made state funds available to high schools to conduct vocational education activities for 50 years (Report No. 70-9, January 1971).

As early as 1933, biennial reports of the Superintendent of Public Instruction indicate provision of an additional amount of money -- two tenths per vocational class. That additional twenty percent continued through the 1977-78 school year. A vocational class was considered to be one hour of instruction. Therefore, if a student was in vocational classes for two hours per day for the full school term, the added money would amount to 2 x 0.2 or 0.4, a 40 percent added funding over the base amount.

Such a weighting was in recognition of added costs of vocational classes: smaller class sizes for safety and instructional effectiveness; costly equipment; and coordination time for extending learning into the home and community.

With the implementation of the State Basic Education Act of 1977 in the 1978-79 school year, a new allocation formula was adopted. The formula used for apportioning state funds from 1964-65 through 1977-78 was characterized as a "weighted" student formula. The basic education formula is characterized as an "educational unit" formula. Whereas the weighted student formula provided an added 20 percent weighting for each vocational hour of instruction (a full day for vocational education was considered to be five hours of instruction), the new educational unit formula provides enhanced staffing ratios, and effectively, 28 percent enriched funding.

Figure C1, found on the following page, shows the formula ratios from 1978-79 through 1992-93.

Appendix C -- Funding Formula History

School Year	Non-Vocational	Vocational	Non-Voc NERC	Voc NERC
1978-79	1:23.5 K-12	1:19.6	\$3,650	No NERC
	1:3 Classified	No Classified		
1979-80	1:20 K-12	1:16.67	\$3,910	\$6,893
	1:3 Classified	1:60 Classified		
1980-81	1:20 K-12	1:16.67	\$4,184	\$7,375
	1:3 Classified	1:60 Classified		
1981-82	1:20 K-12	1:18.3	\$4,572	\$8,000
	1:3 Classified	1:60 Classified		
1982-83	1:20 K-12	1:18.3	\$4,966	\$8,641
	1:3 Classified	1:60 Classified		
1983-84	1:20 K-12	1:18.3	\$5,287	\$10,074
	1:3 Classified	1:16.67 (Skills Ctrs)		
		1:60 Classified		
1984-85	1:20 K-12	1:18.3	\$5,462	\$10,408
	1:3 Classified	1:16.67 (Skills Ctrs)		
		1:60 Classified		
1985-86	1:20 K-12	1:18.3	\$5,614	\$10,698
	1:3 Classified	1:16.67 (Skills Ctrs)		
		1:60 Classified		
1986-87	1:20 K-12	1:17.5	\$5,833	\$11,115
	1:3 Classified	1:16.67 (Skills Ctrs)		
		1:60 Classified		
1987-88	46:1000 K-12	0.92 CIS:17.5	\$5,973	\$11,382
	4:1000 CAS	0.08 CAS:17.5		
	+2:1000 K-3	0.92 CIS:16.67 (SC)		
	1:3 Classified	0.08 CAS:16.67		
		(SC)		
1988-89	46:1000 K-12	0.92 CIS:17.5	\$6,188	\$11,792
	4:1000 CAS	0.08 CAS:17.5		
	+3:1000 K-3	0.92 CIS:16.67 (SC)		
	1:3 Classified	0.08 CAS:16.67		
		(SC)		
1989-90	46:1000	1:17.5	\$6,355	\$12,110
	4:1000	1:16.67 (Skills Ctrs)		
1990-91	46:1000	1:17.075	\$6,654	\$12,679
	4:1000	1:16.67 (Skills Ctrs)		
1991-92	46:1000	1:16.67	\$6,848	\$13,049
	4:1000	1:16.67 (Skills Ctrs)		
1992-93	46:1000	1:16.67	\$7,060	\$13,454
	4:1000	1:16.67 (Skills Ctrs)		

Figure C1

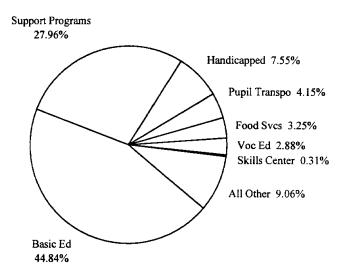
Appendix D -- Expenditure Comparison

Washington State K-12 Public Schools General Fund Expenditures

(Dollars in Thousands)

1988-89

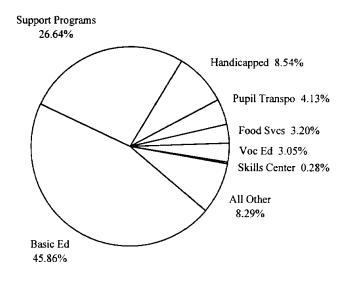
Statewide Total	\$3,273,277
All Other	296,663
Skills Centers	10,017
Vocational Education	94,318
Food Services	106,347
Pupil Transportation	135,925
Handicapped	247,133
Support Programs	915,147
Basic Education	\$1,467,727



1988-89

1992-93

Statewide Total	\$4,662,562
All Other	386,553
Skills Centers	13,129
Vocational Education	142,360
Food Services	149,362
Pupil Transportation	192,413
Handicapped	398,281
Support Programs	1,242,205
Basic Education	\$2,138,259



1992-93

[&]quot;Support Programs" include Instruction Support and Districtwide Support; "All Other" includes approximately 40 different programs ranging from \$60 thousand to \$64 million per school year in 1992-93

Appendix E -- School-To-Work Transition



Appendix F -- Glossary

Advisory Committees

A panel of local community and business representatives who volunteer to oversee and provide direction for vocational programs.

Applied Academics Courses

Specific courses that involve "real-world" exercises demonstrating established academic principles, offering students the opportunity to relate theory to practice through hands-on learning. Vocational applied academic courses include Principles of Technology (Applied Physics), Materials Science Technology, and Applied Mathematics. Other applied academics curriculum are Applied Communications and Applied Biology/Chemistry.

Apportionment

The process by which the Office of the Superintendent of Public Instruction distributes monies from the state general fund to local school districts as specified in RCW 28A.510.250.

Career Pathways

As part of Education Reform and School-to-Work Transition initiatives, a restructuring of secondary education curricula provides pathways or "schools within a school," allowing students to choose from pathways such as Business and Marketing, Health and Human Services, and Engineering and Scientific. These curricula support increased integration of vocational and academic curricula.

Certificated Staff Unit

Amount of state apportionment money generated by the state funding formula for a local district employee who holds a teaching certificate. Expressed as a ratio, e.g. 1:16.67 staff to FTE enrollments.

Classified Staff Unit

Amount of state apportionment money generated by the state funding formula for a local district employee who does not hold a teaching certificate. Expressed as a ratio, e.g. 1:60 staff to FTE enrollments.

Competency-Based Learning

Curricula that emphasizes skills mastery for advancement, rather than letter grades.

Contractual Services

Services rendered by personnel who are not on the payroll of the school system, including all related expenditures covered by the contract.

Direct Expenditures

Expenditures identified with specific program delivery. Direct expenditures usually exclude general overhead expenses.

Appendix F -- Glossary

FTE

Full-Time Equivalent, usually applies to either enrollment or staff.

Indirect Expenditures

Expenditures not identified with specific programs, which are accumulated in the accounting system under support program codes 92, 94, and 97. Indirect expenditures include general overhead, and so must be calculated on a pro-rata or allocation basis to attribute them to individual programs.

Integrated Programs

An educational program that combines vocational and academic concepts into a single curriculum to increase the relevancy of course work; thereby, strengthening and increasing academic standards, and enabling students to apply knowledge and skills to career and educational objectives. Examples of integrated courses are English and Business Communications, Foods and Fitness, History and Keyboarding, and Psychology and Child Development.

LEAP

Legislative Evaluation and Accountability Program.

NERC (Non-Employee Related Costs)

Costs associated with supplies and materials, instructional materials, contract services, travel, and capital outlay.

NERC Unit

Amount of state apportionment money generated by the state funding formula to cover non-employee related costs. The formula generates one vocational NERC unit , e.g. \$13,454, for each certificated staff unit generated by the vocational education funding formula. The NERC unit for vocational programs is almost twice the Basic Education NERC unit.

School-To-Work Transition

A restructuring effort which provides multiple learning options and seamless integrated pathways to increase all students' opportunities for pursuing careers and educational interests.

Skills Center

An interdistrict cooperative reported under Program 45. There are eight Skills Centers: Sno-Isle, Spokane, New Market, Yakima, Tri-Tech, Clark County, Kitsap Peninsula, and Sea-Tac.

SPI

Superintendent of Public Instruction.

Appendix F -- Glossary

Tech Prep

A four year sequenced secondary and post secondary competency based program that leads to an associate degree, two year certificate, or two or more years of apprenticeship training. The program: provides technical preparation in one or more specific occupational fields; builds students competence in mathematics, science, and communications (including applied academics) through a sequential course of study; and leads to placement in mid-level technological occupations.

Traditional/Sequential Courses

Components of a series or suite of courses that provides a cumulative learning experience, building to a skill level that prepares the student for entry-level employment. Examples include an Agriculture program consisting of Agriculture I, II, III, and IV; and a Business and Office program consisting of Keyboarding, Information Processing I and II, Accounting I and II, and a Business and Office Cooperative capstone course which provide the student with a certificate of mastery or competency, and prepares them for entry-level employment.

Vocational Programs

The categories or types of programs offered within vocational education include: Agriculture Education, Business Education, Community Resource Training (CRT). Diversified Occupational Training, Health Occupations Education, Home and Family Life Education, Home Economics Related Occupations, Marketing Education, Technology Education/Industrial Arts, and Trade and Industrial Education. See the Working Papers document for further information.

Vocational Student Leadership Organizations

Organizations for students enrolled in vocational education programs which engage in student leadership activities as an integral part of the instructional program. Such organizations may have state and national units which aggregate the work and purposes of instruction in vocational education at the local level.

WAVA

Washington Association of Vocational Administrators.

WVA

Washington Vocational Association.